

## Intisari

Penelitian ini dilakukan untuk mengetahui pengaruh suhu dan lama ekstraksi metode *direct transesterification* terhadap ekstraksi kandungan asam lemak serta mengetahui profil asam lemak pada rumput laut cokelat *Sargassum oligocystum* yang diambil dari Pantai Ngandong, Gunung Kidul. Pengujian ini menggunakan metode *direct transesterification* (*Garcia Method*) dan metode konvensional (*Bligh and Dyer Buffer*) sebagai kontrol. Rancangan percobaan menggunakan *split-plot design* (2 kali ulangan) dengan petak utama suhu ekstraksi (60°C, 70°C, dan 80°C) serta anak petak lama ekstraksi (1 jam, 2 jam, dan 3 jam). Pengujian yang diamati meliputi kadar air, total lipid, dan komposisi asam lemak. Kadar air *Sargassum oligocystum* 84,40% dan total lipid 2,55%. Hasil pengujian menunjukkan kombinasi perlakuan terbaik terdapat pada suhu 80 °C dengan lama ekstraksi 2 jam dengan nilai rasio PUFA/SFA 0,15; tiga jenis MUFA terdeteksi meliputi asam kaproleat (C10:1) 0,35%, asam miristoleat (C14:1) 0,09%, dan asam oleat (C18:1 (n-9)) 3,82%; empat jenis PUFA terdeteksi meliputi asam linoleat (C18:2 (ω-6)) 3,82%, asam stearidonat (C18:4) 0,26%, asam eikosadienoat (C20:2) 1,5% dan asam dokosaheksanoat (C22:6 (ω-3)) 0,28%.

Kata kunci: *Sargassum oligocystum*, *direct transesterification*, suhu ekstraksi, lama ekstraksi, asam lemak.

### *Abstract*

The aim of this study was to analyze the effect of temperature and duration of direct transesterification method on extraction of fatty acid and to find out the fatty acid profile of brown seaweed *Sargassum oligocystum* taken from Ngandong Coast, Gunung Kidul. This experiment used the direct transesterification Garcia Method and the conventional method Bligh and Dyer Buffer as a control. The research used split-plot design (2 repetitions) with the main plot of extraction temperature (60°C, 70°C, dan 80°C) and the subplots extraction duration (1 hour, 2 hours and 3 hours). Water content, total lipids, and fatty acid composition was observed. Water content of *Sargassum oligocystum* was 84.40% and total lipid was 2.55%. These results showed that the best treatment combination was at 80 °C and 2 hours extraction duration with PUFA/SFA ratio 0.15; 3 types of MUFA was detected (caproleic acid (C10:1) 0.35%, miristoleic acid (C14:1) 0.09%, and oleic acid (C18:1 (n-9)) 3.82%); 4 types of PUFA was detected (linoleic acid (C18:2 (ω-6)) 3.82%, stearidonic acid (C18:4) 0.26%, eicosadienoic acid (C20:2) 1.5% and docosaheksanoic acid (C22:6 (ω-3)) 0.28%).

Keywords: *Sargassum oligocystum*, direct transesterification, extraction temperature, extraction duration, fatty acids.